

**PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT : HOLST, et al.  
SERIAL NO :  
FILED :  
TITLE : GLP-1 AS A DIAGNOSTIC TEST TO DETERMINE  $\beta$ -CELL  
FUNCTION AND THE PRESENCE OF THE CONDITION OF IGT  
AND TYPE-II DIABETES  
Grp./A.U. :  
Examiner :  
Conf. No. :  
Docket No. : P03987US1

**PRELIMINARY AMENDMENT**

Assistant Commissioner for Patents  
Washington, D.C. 20231

Dear Sir:

Please enter this Preliminary Amendment in the above-case  
which will leave only the non-elected Group II claims from the  
parent case for examination in this divisional application.

**In the Claims**

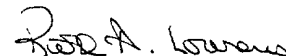
Please cancel claim 1 and claim 8.

Please amend claims 2, 7, 9, 10, 11, 12, 13 and 14 as  
follows:

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**CERTIFICATE OF MAILING BY EXPRESS MAIL**

I hereby certify that this document and the documents referred to as enclosed therein are being deposited  
with the U.S. Postal Service in an envelope as "Express Mail Post Office to Addressee" addressed to: Assistant  
Commissioner for Patents, Box Patent Application, Washington, D.C. 20231, prior to 5:00 p.m. on the 26<sup>th</sup> day of  
October, 2001.



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Express Mail Label # EL325950870US

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Claim 2 (Amended)

The method of claim 15 wherein the glucagon-like peptide-1 is selected from (a) a peptide which comprises the amino acid sequence of glucagon-like peptide-1, and (b) a variant peptide comprising an amino acid sequence that differs from the sequence of glucagon-like peptide-1 by one or more substitutions, deletions or insertions wherein said variant binds to the glucagon-like peptide-1 amide receptor protein and has a corresponding biological affect on insulin secretion as GLP-1 (7-36) amide.

Claim 7 (Amended)

The method of claim 15, further comprising using an agent which enhances the half-life *in vivo* of the compound.

Claim 9 (Amended)

The method of claim 15 wherein the patient is simultaneously infused with a combined glucose/GLP-1 or its biologically active analogue.

Claim 10 (Amended)

The method of claim 15 wherein the patient is first infused with glucose and then later with GLP-1.

Claim 11 (Amended)

The method of claim 15 wherein the dose of GLP-1 is a bolus dose intravenously administered at from .05 nmol to 100 nmol.

Claim 12 (Amended)

The method of claim 15 wherein the dose is a bolus subcutaneous method at from 10 nmol to 1000 nmol.

Claim 13 (Amended)

The method of claim 15 wherein the patient is infused with a dose of GLP-1 or a biologically active analogue continuously infused by I.V. at from 0.1 pmol/kg/min to 10 pm/kg/min.

Claim 14 (Amended)

The method of claim 15 wherein dosing is continuous subcutaneous infusion at a dose of from 0.5 to 50 pm/kg/min.

Please add new claim 15 as follows:

Claim 15 (New)

A method of detecting impaired glucose tolerance of individuals by evaluation of  $\beta$ -cells secretory capacity, comprising:  
infusing the individual with glucose and a glucagon-like peptide-1 or its biologically active analogue expressed by a polynucleotide wherein said analogue binds to the glucagon-like peptide amide receptor protein and has a corresponding effect on insulin secretion as GLP-1 (7-36) amide; and thereafter  
measuring the insulin and C-peptide responses against standard responses of healthy subjects to determine if the individual has impaired  $\beta$ -cell function.

**REMARKS**

In the parent case, the Examiner entered a restriction requirement with respect to claim 8 in the office action of March 20, 2001. Applicant elected all of the claims of the first group (excluding claim 8). This divisional preserves claim 8 and rewrites it in independent form as claim 15. All of the other limitations remain the same in claim 15 as were expressed in allowed claim 1 of the parent case. It is submitted that this divisional is in form for allowance.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "**Version with markings to show changes made.**"

Reconsideration and allowance is respectfully requested.

Respectfully submitted,



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PRELIMINARY AMENDMENT — VERSION WITH MARKINGS  
TO SHOW CHANGES MADE

In the Claims

Claim 2 (Amended)

The method of claim [1] 15 wherein the glucagon-like peptide-1 is selected from (a) a peptide which comprises the amino acid sequence of glucagon-like peptide-1, and (b) a variant peptide comprising an amino acid sequence that differs from the sequence of glucagon-like peptide-1 by one or more [substittions] substitutions, deletions or insertions wherein said variant binds to the glucagon-like peptide-1 amide receptor protein and has a corresponding biological affect on insulin secretion as GLP-1 (7-36) amide.

Claim 7 (Amended)

The method of claim [1] 15, further comprising using an agent which enhances the half-life *in vivo* of the compound.

Claim 9 (Amended)

The method of claim [1] 15 wherein the patient is simultaneously infused with a combined glucose/GLP-1 or its biologically active analogue.

Claim 10 (Amended)

The method of claim [1] 15 wherein the patient is first infused with glucose and then later with GLP-1.

Claim 11 (Amended)

The method of claim [1] 15 wherein the dose of GLP-1 is a bolus dose intravenously administered at from .05 nmol to 100 nmol.

Claim 12 (Amended)

The method of claim [1] 15 wherein the dose is a bolus subcutaneous method at from 10 nmol to 1000 nmol.

Claim 13 (Amended)

The method of claim [1] 15 wherein the patient is infused with a dose of GLP-1 or a biologically active analogue continuously infused by I.V. at from 0.1 pmol/kg/min to 10 pm/kg/min.

Claim 14 (Amended)

The method of claim [1] 15 wherein dosing is continuous subcutaneous infusion at a dose of from 0.5 to 50 pm/kg/min.

Claim 15 (New)

A method of detecting impaired glucose tolerance of individuals by evaluation of  $\beta$ -cells secretory capacity, comprising:

infusing the individual with glucose and a glucagon-like peptide-1 or its biologically active analogue expressed by a polynucleotide wherein said analogue binds to the glucagon-like peptide amide receptor protein and has a corresponding effect on insulin secretion as GLP-1 (7-36) amide; and thereafter measuring the insulin and C-peptide responses against standard responses of healthy subjects to determine if the individual has impaired  $\beta$ -cell function.